

U.S. Army Center for Health Promotion and Preventive Medicine

A SOLDIER'S GUIDE TO STAYING HEALTHY IN WEST AFRICA

SHG 013-0703



DISTRIBUTION: UNLIMITED

A SOLDIER'S GUIDE TO STAYING HEALTHY IN TROPICAL SOUTH AMERICA

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INTRODUCTION

This country-specific guide should be used in conjunction with [GTA 08-05-062, Guide to Staying Healthy](#), and is intended to provide information that can help reduce your risk of Disease and Non-battle Injuries (DNBI) when deployed. This health threat and countermeasure information is based on the most current data available from U.S. Department of Defense medical agencies at the time of production. In addition to the information in this guide, you should also receive force health protection, health threat, and preventive medicine countermeasures training/briefings prior to and, as required, throughout the length of your deployment.

WEST AFRICA OVERVIEW

West Africa includes the countries of [Benin](#), [Burkina Faso](#), [Cote D'Ivoire](#), [The Gambia](#), [Ghana](#), [Guinea](#), [Guinea-Bissau](#), [Liberia](#), [Mali](#), [Mauritania](#), [Niger](#), [Nigeria](#), [Senegal](#), [Sierra Leone](#), and [Togo](#). The borders of the region include Chad and Cameroon in the east; the Atlantic Ocean in the south and west; and Libya, Algeria, and Western Sahara in the north. There are two mountainous areas along the coast: the Sierra Leone Peninsula and western Cote d'Ivoire. Towards the north is the Sahara Desert. Towards the south are rising foothills and upland plateaus that contain savannahs and tropical rain forests. There are two low-mountainous areas in West Africa. The elevation of West Africa ranges from 3 meters below sea level in Mauritania to almost 8,000 feet above sea level in Nigeria. The climate in the region is tropical with hot and humid summers and mild, dry winters except for the Sahara Desert, which is extremely hot during the day and very cold at night. The wet season is May to October with an average annual rainfall from 35 to 71 inches; however, coastal areas can receive up to 200 inches while desert regions receive fewer than 10 inches. Severe monsoon downpours and thunderstorms with tornadoes and flash flooding can occur in the tropical regions at the beginning and end of the wet season. Hot, dry, and dust-laden winds from the Sahara occur during the dry season in the northern and central areas and can raise temperatures to over 100° F.

WESTERN AFRICA RISK ASSESSMENT

Based on a combination of all major infectious diseases that occur in a country, an overall country risk level is assigned as low, intermediate, high, or highest risk. All the countries in this region are rated as HIGHEST RISK for infectious diseases except for Mauritania, which is HIGH RISK. Without force health protection measures, mission effectiveness will be seriously jeopardized. Environmental contamination may also present short- and long-term health risks to personnel deployed to West Africa.

This guide discusses specific disease and environmental risks and ways to eliminate or lessen those risks.

VECTOR-BORNE DISEASES

Vector-borne diseases are diseases that are contracted through the bite of an insect.

DISEASE RISKS

The vector-borne diseases of greatest risk are—

[Malaria](#). Malaria is a very serious disease transmitted through the bite of a mosquito that carries the malaria protozoa. Soldiers who contract malaria usually are in the hospital for 1-7 days. Severe cases may require intensive care or a very long recovery

time. People can die from malaria. The risk of contracting malaria is the same throughout the year and in all areas of West Africa.

[Yellow fever](#). Yellow fever is a very serious disease transmitted through the bite of a mosquito that carries the yellow fever virus. Soldiers who contract yellow fever may require intensive care. People can die from yellow fever. The risk of contracting yellow fever is the same throughout the year and occurs in all rural areas and most urban areas of West Africa.

Soldiers deployed to West Africa are also at high risk of contracting [dengue fever](#) from mosquitoes and [Crimean-Congo hemorrhagic fever](#) from ticks. Other vector-borne diseases that pose some risk to soldiers are [chikungunya virus](#), [Rift Valley fever](#), Sindbis (Ockelbo) and [West Nile fever](#) from mosquitoes; [Boutonneuse \(Mediterranean spotted fever\)](#) from ticks; [leishmaniasis](#) from sand flies; [murine typhus](#) from fleas; and [trypanosomiasis](#) from tsetse flies.

Your local medical authority will determine if these diseases or other vector-borne diseases are a threat in your specific location and provide appropriate countermeasures.

PREVENTION

- There is medicine you must take to help prevent malaria, and there is a vaccine for yellow fever. Take your malaria prevention pills when directed to do so. This is CRITICAL. Normally, you will begin taking medication before arriving in the area, while in the area, and after returning home.
- When deployed to this region, use the [DOD Insect Repellent System](#) detailed in [GTA 08-05-062](#) to reduce your risk of acquiring a vector-borne disease.
- Wear [permethrin](#)-treated uniforms with trousers tucked into boots, sleeves rolled down, and undershirt tucked into trousers. Wear N-diethyl-meta-toluamide (DEET) on exposed skin.
- When deployed to this region, [sleep under a permethrin-treated bed net](#) to repel insects and further reduce risks of vector-borne diseases.
- When using both DEET and sunscreen products, apply sunscreen to the skin first so it does not interfere with the effectiveness of the DEET. After 30 minutes to an hour, apply the DEET. This allows the sunscreen to penetrate and bind to the skin first.

FOOD-BORNE AND WATER-BORNE DISEASES

DISEASE RISKS

Food-borne and water-borne diseases are caused by eating food or drinking water that contains the bacteria, parasites or viruses that cause certain diseases. Sanitation is very poor throughout West Africa, even in major urban areas. Local food and water sources (including ice) can be heavily contaminated with the bacteria, parasites, viruses, pesticides, and fertilizers that cause disease. Diarrheal diseases can be expected to affect a very large number of personnel within days if local food, water, or ice is consumed. The food and water-borne diseases of greatest risk are—

[Diarrhea \(bacterial and protozoal\)](#). This is a mild but uncomfortable disease caused by drinking water or eating food that contains bacteria or protozoa. There are a number of bacteria and protozoa that can cause diarrhea. If you consume local food or water in West Africa, diarrhea will almost always occur.

[Hepatitis A](#). Hepatitis A is a debilitating liver disease caused by eating food or drinking water that contains the hepatitis A virus. It can also be caused by not washing your hands after you go to the bathroom.

[Typhoid/paratyphoid fever](#). Typhoid fever is a life-threatening illness caused by bacteria found in food and water. People can have typhoid and not have symptoms. Often, these people will infect others by accidentally contaminating their food or water.

Soldiers deployed to West Africa are in danger of contracting other food and water-borne diseases. These are [brucellosis](#) (often caused by eating dairy products), [cholera](#), and [hepatitis E](#).

PREVENTION

- Assume all non-approved food, ice, and water is contaminated. You should not drink local tap water, fountain drinks, or ice cubes. Do not eat any food or drink any water or a beverage (including bottled water) that has not been approved by the U.S. military as these may be contaminated. Even a one-time consumption of these foods or water may cause severe illness.
- There are vaccines for hepatitis A and typhoid fever. They are not 100 percent effective so you still should not consume unapproved food or water.
- See [GTA 08-05-062](#) for appropriate countermeasures.

WATER-CONTACT AND SOIL-CONTACT DISEASES

DISEASE RISKS

Water-contact diseases are diseases contracted by swimming, wading, or other skin contact with water contaminated with certain diseases. Soil-contact diseases are contracted by coming into contact with soil or dust contaminated with certain diseases. Usually, you must breathe in the dust or soil that is infected. The water-contact and soil-contact diseases of greatest risk are—

[Schistosomiasis](#). Schistosomiasis is a water-contact disease caused by parasitic worms. Infection can be mild or serious enough to require hospitalization. The risk of contracting schistosomiasis is the same year round. It is found in all areas of West Africa, including urban areas.

[Lassa fever](#). Lassa fever is a soil-contact disease caused by a virus. You can contract Lassa fever when you breathe in dust that contains the virus. Lassa fever is most common in Guinea but can be found in almost any country in West Africa.

In addition to schistosomiasis and Lassa fever, another disease of military importance is the water-contact disease [leptospirosis](#).

Skin irritations and infections, such as athlete's foot and ringworm, are also common medical threats during any deployment and are commonly caused by fungi that thrive in moist conditions.

PREVENTION

- Do not swim or wade in water that has not been treated with chlorine.
- If you must be exposed to non-chlorinated water, wear protective clothing and footwear.
- Never go barefoot.
- Clean your skin and clothing after wading or swimming in freshwater ponds or streams.
- Try not to inhale dust or dirt that has been inhabited by rodents.
- To prevent skin infections, maintain clean, dry skin.
- See [GTA 08-05-062](#) for additional countermeasure information.

ANIMAL - CONTACT DISEASES

DISEASE RISKS

Diseases contracted through contact with animals that are of potential military significance include [rabies](#), [anthrax](#) and [Q fever](#). These animal-contact diseases are serious illnesses that you contract from being bitten by an infected animal (rabies), touching or eating infected animals (anthrax), or inhaling dust that contains the organisms that cause the disease (Q fever, anthrax). Cats, dogs, and bats are the main carriers of rabies, but any animal can be infected with rabies. Cattle, sheep and goats are the main carriers of anthrax and Q fever.

PREVENTION

- Avoid contact with all animals.
- If bitten, seek medical attention immediately.
- Keep living quarters free of rodents, and stay clear of buildings infested with rodents.
- Always check dug-in fighting positions for potentially dangerous animals.
- Clean your skin and clothing after contact with animals or dust.

DANGEROUS ANIMALS AND PLANTS

RISKS

- Many species of highly poisonous snakes, which are well camouflaged and very aggressive, live in the region.
- Several species of scorpions and spiders, some with potentially fatal venom, are present throughout the region.
- Some regional plants have thorns, stinging hairs, or toxic resins that may puncture the skin or introduce poison into the skin causing skin irritation, rashes or infections.
- Contact with the smoke from the burning of these plants can also cause skin rashes and damage to your lungs.
- Some regional plants may cause systemic poisoning if leaves, berries, flowers, or other plant parts are chewed or swallowed. Symptoms include dizziness, vomiting, irregular heartbeat, and delirium or hallucinations.

PREVENTION

- Consider any snake encountered as poisonous, and do not handle.
- Seek immediate medical attention if bitten or stung by any animal or insect; untreated snakebites may cause serious illness or death within 1 hour.
- If possible, avoid sleeping on the ground.
- Shake out boots, bedding, and clothing prior to use, and never walk barefoot.
- Avoid skin contact with plants when possible.
- Clean your clothing with soap and water after contact with animals or harmful plants.

RESPIRATORY AND SEXUALLY TRANSMITTED DISEASES

RISKS

The contagious diseases of greatest risk are—

[Meningococcal meningitis](#). This is an extremely serious, often fatal, highly contagious bacterial disease that causes an inflammation of the lining of the brain and can eventually shut down your organs. A person is at risk of contracting the disease when he or she comes into close contact with oral secretions of a person who is carrying the bacteria (for example, through a cough or kiss).

Human immunodeficiency virus ([HIV/acquired immune deficiency syndrome \(AIDS\)](#)) and [hepatitis B](#). These are potentially fatal sexually transmitted diseases ([STDs](#)) that are very common in West Africa. They can also be passed by sharing needles. Though the immediate impact of HIV/AIDS and hepatitis B on an operation is limited, the long-term impact on your individual health is great.

Soldiers deployed to West Africa are at risk of contracting other contagious diseases. There is a risk of being exposed to the bacteria that causes [tuberculosis](#) (TB). Breathing in the bacteria that someone coughed or sneezed into the air spreads TB. Being exposed to the bacteria will cause a positive skin test even if you do not become sick. If you have a positive skin test, you may still be treated even if you have no symptoms. Soldiers are also at risk of contracting STDs, such as [gonorrhea](#) and [chlamydia](#) if they have unprotected sex.

PREVENTION

- There is a vaccine against meningococcal meningitis, but it is not always effective. If there is a local outbreak, stay away from crowds.
- There is a vaccine for hepatitis B but not for any other STD. **Anyone deployed to the region should not have unprotected sex and should not share needles.**
- Those deployed should see [GTA 08-05-062](#) for appropriate countermeasures.

SAND, WIND, AND DUST

Severe sandstorms and dust storms are common throughout the region. Heat, sand, wind, and dust cause health problems, particularly to skin, eyes, nose, throat and lungs. Take care of problems early to avoid infection. High winds can turn loose objects into flying missiles (which may not be visible in blowing sand). To help avoid problems—

- Take a daily sponge bath, using an approved water source.
- Wash your face and eyelids several times per day.
- Carry at least two pairs of glasses and a copy of your prescription. Do not wear contact lenses; [AR 40-63](#) prohibits contact lens use during a military deployment.
- Carry artificial tear drops to use if you get something in your eye or your eyes feel dry.
- Breathe through a wet face cloth, or coat the nostrils with a small amount of petroleum jelly to minimize drying of mucous membranes. Protect your lips with lip balm.
- Shield your face with cloth materials to protect from blowing dust and sand.
- Wear goggles (NSN 8465-01-328-8268) to protect your eyes from wind, dust, and sand or when traveling in open vehicles.
- Wear gloves and use moisturizing skin lotion to protect your hands.

HOT AND COLD WEATHER INJURIES

Heat is the greatest overall medical threat when deployed to this region, especially during the early phase of deployment; acclimatization is critical. Individual and unit countermeasures are extremely important. Cold injuries are possible during the winter in the desert region. See [GTA 08-05-062](#) for appropriate countermeasures.

HIGH ELEVATIONS

Military operations occurring at elevations over 6,000 feet can seriously affect unit and individual effectiveness due to lower levels of oxygen. Serious illness or death can result if you increase your elevation rapidly without allowing for acclimatization. Remain well hydrated; individual water requirements are greater at higher altitudes.

When deployed to high mountain areas, look for the common symptoms of mountain sickness: headache, nausea, vomiting, dizziness, fatigue, irritability, and coughing. Seek medical attention immediately if you experience any of these symptoms.

Pyridostigmine bromide tablets may increase the chance of dizziness or fainting during the first 24 hours at high altitude if you are not acclimatized.

When wearing mission-oriented protective posture (MOPP) gear at higher altitudes, you may require more time and concentration to perform assigned tasks.

For appropriate countermeasures during high altitude operations, see [GTA 08-05-062](#) and [GTA 08-05-060, A Soldier's Guide to Staying Healthy at High Elevations](#).

TOXIC INDUSTRIAL CHEMICALS AND MATERIALS

The greatest environmental health risks to forces deployed to West Africa are associated with consumption of water contaminated with raw sewage or runoff containing fecal pathogens, as well as air pollution and soil and water contaminated with pesticides.

When deployed, you may also face health risks from industrial chemicals and materials as a result of activities by terrorists or warring parties or from accidents related to improper design, maintenance, or operation of indigenous industrial facilities or improper handling or disposal of hazardous material with which our own forces deploy. The degree of health risk depends upon many factors. Consult your medical authority for additional information.

FIELD SANITATION TEAM

Each company-sized unit has a Field Sanitation Team (FST) whose members are trained (40-hour course) and fully equipped according to [AR 40-5](#), [FM 4-25.12](#), and [FORSCOM REG 700-2](#). Know who the members of your FST are, and know how they can assist in preventing medical threats to your health. Become familiar with FST equipment and training.

HEARING PROTECTION

It is essential that you use properly fitted [hearing protection](#) during military operations. Exposure to high-intensity noise may cause hearing loss that can adversely affect your combat effectiveness and individual readiness. Good hearing is essential to mission success. If you are a dismounted soldier, the [Combat Arms Earplug](#) (NSN 6515-01-466-2710) will protect you from the impact noise of weapons fire while only slightly

interfering with voice communications and detection of combat sounds such as vehicle noise, footfalls in leaves, and the closing of a rifle bolt. While not as effective as the Combat Arms Earplug in preserving your ability to hear important mission-related sounds, noise muffs or standard earplugs are very effective at preventing noise-induced injury. If you are a member of vehicle or helicopter crews, your combat vehicle crew or aircrew helmets have built-in hearing protectors.

ORAL HEALTH

[Dental disease](#) is a common problem during deployments because it is not easy to take care of your mouth. You should deploy with toothbrush, dental floss, and fluoride toothpaste. You should brush your teeth twice a day and floss your teeth once a day. This is the best way to prevent gum disease, trench mouth and tooth decay. In difficult tactical environments, teeth should be brushed at least once a day. Seek medical attention immediately at the onset of any dental problems. You are more vulnerable to other diseases when your mouth is not healthy.

PRE-DEPLOYMENT HEALTH INFORMATION

- [Complete the Pre-Deployment Health Assessment \(DD FORM 2795\)](#) to assess your state of health before deployment and to assist health care providers in identifying your medical needs and providing present and future future medical care to you.
- You will not have access to your health care record during the deployment. The Adult Preventive and Chronic Care Flowsheet ([DD FORM 2766](#)) will be used as your deployment health record. This document will include information on all your immunizations, any medications you are currently taking, and any ongoing medical problems that you may have. When you go through readiness processing, ensure that all appropriate information is documented on your DD FORM 2766. When you return home, this information will be placed in your regular health record.

INFORMATION ABOUT YOUR HEALTH CARE WHILE DEPLOYED

- It is important that you know where to seek health care while deployed. This may or may not be through the same channels as your home station. Ask your chain of command for more information.
- While deployed, you must maintain your health and seek care whenever an illness or injury affects your work. Your unit is depending on you. It is always better to seek care early so your problems can be documented appropriately and taken care of immediately. When problems are caught early, they are usually easier to treat.

POST-DEPLOYMENT HEALTH INFORMATION

- [Complete the Post-Deployment Health Assessment \(DD FORM 2796\)](#) to assess your health after deployment and to assist health care providers in identifying your medical needs and providing present and future medical care to you.
- If you become sick after you return home, tell your doctor that you were deployed.

- Complete malaria medications as directed, and receive follow-on medical care/tests as directed.

Contact your Preventive Medicine or Medical Support Unit for more information.



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